

## CLAIMS

I claim:

1. A stillwell apparatus for housing an analytical device, wherein the stillwell apparatus comprises:
  - a) a generally cylindrical shape having an interior for housing the analytical device;
  - b) an exterior for mounting parallel to said stillwell apparatus a means for cleansing said stillwell apparatus;
  - c) an upper section and an opposing lower section, said upper section comprises means for sealingly connecting to an exterior of a vessel , said lower section comprises means for passage of solution to be analyzed; and
  - d) a means for extending the length of the stillwell apparatus.
2. A stillwell apparatus according to claim 1 wherein said vessel is selected from the group consisting of underground storage tanks, chemical reaction vessels, water tanks, water wells, municipal waste containers, municipal tanks, waste water tanks, and sewage tanks.
3. A stillwell apparatus according to claim 1 wherein said upper section further comprises means for pressure equalization.
4. A stillwell apparatus according to claim 1 wherein said upper section further comprises means for pressure equalization and said pressure equalization comprises vent holes.

5. A stillwell apparatus according to claim 1 wherein said upper section further comprises a gas inlet tube.
6. A still well apparatus according to claim 1 wherein said upper section further comprises a lid.
7. A stillwell apparatus according to claim 1 wherein means for cleansing said stillwell apparatus comprises a conduit for delivery of a cleansing solution.
9. A stillwell apparatus according to claim 1 wherein said lower section comprises port holes.
10. A stillwell apparatus according to claim 1 wherein said means for extending the length of the stillwell apparatus further comprises a middle section appended therebetween said upper section and said lower section.
11. A stillwell apparatus for housing an analytical device, wherein the stillwell apparatus comprises:
  - a) a generally cylindrical shape having an interior for housing the analytical device;
  - b) an exterior for mounting parallel to said stillwell apparatus a means for cleansing said stillwell apparatus;
  - c) an upper section and an opposing lower section, said upper section comprises means for sealingly connecting to an exterior of a vessel;
  - d) a means for extending the length of the stillwell apparatus;

- e) said vessel is selected from the group consisting of underground storage tanks, chemical reaction vessels, water tanks, water wells, municipal waste containers, municipal tanks, waste water tanks, and sewage tanks;
  - f) said upper section further comprises means for pressure equalization, wherein said means for pressure equalization comprises vent holes;
  - g) said upper section further comprises a gas inlet tube;
  - h) said upper section further comprises a lid; and
  - i) said means for cleansing said stillwell apparatus comprises a conduit for delivery of a cleansing solution from an exterior source of a cleansing solution to the lower section of the stillwell; and
  - j) said means for extending the length of said stillwell apparatus comprises insertion of a middle section therebetween said upper section and said lower section.
12. A stillwell apparatus for housing an analytical device, wherein the stillwell apparatus comprises
- a) a generally cylindrical shape having an interior for housing the analytical device;
  - b) an exterior for mounting parallel to said stillwell apparatus a means for cleansing said stillwell apparatus;
  - c) an upper section, a lower section, and a middle section;
  - d) the middle section comprises means for extending the length of the stillwell apparatus;

e) said upper section comprises means for sealingly connecting to an exterior of a vessel; and

f) said lower section comprises a plurality of port holes to admit a solution to be analyzed.

13. A stillwell apparatus for housing an analytical device according to claim 12 wherein said means for cleansing said stillwell apparatus comprises a conduit for delivering a cleansing solution, said conduit having first and second opposite ends, said conduit further comprising a means for providing a pressurized flow of said cleansing solution from said conduit first end to said conduit second end, wherein said cleansing solution is selected from the group consisting of gaseous cleansers, liquid cleansers, and solid cleansers, said conduit first end comprising means for attachment to a cleansing solution container, said means for attachment to a cleansing solution container comprising a cleansing solution inlet valve, said cleansing solution inlet valve nozzle having an off position and an on position, wherein said on position allows for delivery of said cleansing solution to said cleansing conduit, and said off position prevents delivery of said cleansing solution to said cleansing conduit, said conduit second end having a nozzle for delivering said cleansing solution to said portholes of said lower section, said nozzle having an off position and an on position, wherein said on position allows for delivery of said cleansing solution to said portholes of said lower section, and said off position prevents delivery of said cleansing solution to said portholes of said lower section.

14. A stillwell apparatus for housing an analytical device according to claim 12 further comprising;
- a) the middle section having means for elongating the length of the stillwell apparatus;
  - b) said upper section having an opening for passage of the analytical device to said interior of said stillwell apparatus;
  - c) said upper section having a gas inlet tube comprising a means for allowing gas into said protector when a gas inlet valve is in an open position, said gas inlet tube further comprising a means for preventing movement of gas into said protector when said gas inlet valve is in a closed position; and
  - d) said upper section having a lid wherein said lid comprises a lid open position and a lid closed position, said lid open position allows for passage of the analytical device to said interior of said stillwell apparatus, said lid further comprises means for sealingly attaching said lid to said upper section.
15. A stillwell apparatus for housing an analytical device according to claim 12 wherein said gas inlet valve comprises a valve open position and a valve closed position, said valve open position comprises means for allowing gas in or out of said stillwell apparatus, said valve closed position comprises means for preventing movement of gas in or out said stillwell apparatus.

16. A stillwell apparatus for housing an analytical device, wherein the stillwell apparatus comprises

- a) a generally cylindrical shape having an interior for housing the analytical device;
- b) an exterior for mounting parallel to said stillwell apparatus a means for cleansing said stillwell apparatus;
- c) an upper section, a lower section, and a middle section;
- d) the middle section comprises means for extending the length of the stillwell apparatus;
- e) said upper section comprises means for sealingly connecting to an exterior of a vessel, wherein said vessel is selected from the group consisting of underground storage tanks, chemical reaction vessels, water tanks, water wells, municipal waste containers, municipal tanks, waste water tanks, and sewage tanks; and
- f) said lower section comprises a plurality of port holes to admit a solution to be analyzed.

17. A stillwell apparatus for housing an analytical device according to claim 16 wherein the upper section further comprises a first end and a second end, the middle section further comprises a first end and a second end, the lower section further comprises a first end and second end, wherein the upper section first end is sealingly connected to an exterior of a vessel, the upper section second end is sealingly connected to the

middle section first end, the middle section second end is sealingly connected to the lower section first end, and the lower section second end comprises port holes.

18. A stillwell apparatus for housing an analytical device, wherein the stillwell apparatus comprises:

- a) a generally cylindrical shape having an interior for housing the analytical device;
- b) an exterior for mounting parallel to said stillwell apparatus a means for cleansing said stillwell apparatus;
- c) an upper section comprising first and second opposite ends, said upper section first end sealingly connected to a top of a vessel and the upper section second end sealingly connected a lower section and in fluid communication therewith,
- d) the lower section comprising first and second opposite ends, said lower section first end sealingly connected to said upper section second end, said lower section second end comprising a plurality of port holes to admit a solution to be analyzed.

19. A stillwell apparatus for housing an analytical device according to claim 18 wherein said means for cleansing said stillwell apparatus comprises a conduit for delivering a cleansing solution, said conduit having first and second opposite ends, said conduit comprising a means for providing a pressurized fluid flow of said cleansing solution from said conduit first end to said conduit second end, wherein said cleansing solution is selected from the group consisting of gaseous cleansers, liquid cleansers, and solid cleansers, said conduit first end comprising means for attachment to a cleansing solution container, said conduit second end having a nozzle for delivering

said cleansing solution to said portholes of said lower section, said nozzle having an off position and an on position, wherein said on position allows for delivery of said cleansing solution to said portholes of said lower section, and said off position prevents delivery of said cleansing solution to said portholes of said lower section.

20. A stillwell apparatus for housing an analytical device according to claim 18 further comprising a means for elongating the length of said stillwell apparatus.

21. A stillwell apparatus for housing an analytical device according to claim 18 further comprising a means for elongating the length of said stillwell apparatus wherein said means for elongating the length of said still comprises a middle section, said middle section sealingly connected there between said upper section and said lower section and in fluid communication therewith.

22. A method for installing a stillwell apparatus for housing an analytical device comprising the steps of

- a) providing a stillwell apparatus; said stillwell apparatus comprising an upper section, said upper section comprising a gas inlet tube, a lid, and vent holes; an opposite lower section, said lower section having port holes; an interior and an exterior;
- b) attaching a conduit to said exterior;
- c) inserting said stillwell apparatus into a vessel;
- d) attaching a lid to the stillwell upper section; and
- e) sealingly connecting said upper section to said vessel.



23. A method for installing a stillwell apparatus according to claim 22 further comprising the step of increasing the length of said stillwell apparatus after said stillwell apparatus is within a vessel.
24. A method for installing a stillwell apparatus according to claim 22 further comprising the steps of attaching the upper section of the stillwell apparatus to said vessel, wherein said vessel is selected from the group consisting of underground storage tanks, chemical reaction vessels, water tanks, water wells, municipal waste containers, municipal tanks, waste water tanks, and sewage tanks.
25. A method for installing a stillwell apparatus for housing an analytical device comprising the steps of
- a) providing a stillwell apparatus, said stillwell apparatus comprising a generally cylindrical shape having an interior for housing the analytical device, an exterior, an upper section having first and second opposite ends, and a lower section having first and second opposite ends;
  - b) mounting on said exterior and parallel to said stillwell apparatus a cleansing conduit for cleansing said stillwell apparatus;
  - c) attaching an upper section first end to an exterior of a vessel, said upper section first end comprising vents; and
  - d) connecting an upper section second end to a lower section first end.

26. A method for installing a stillwell apparatus for housing an analytical device comprising the steps of

- a) providing a stillwell apparatus, said stillwell apparatus comprising a generally cylindrical shape having an interior for housing the analytical device, an exterior, an upper section having first and second opposite ends, and a lower section having first and second opposite ends;
- b) mounting on said exterior and parallel to said stillwell apparatus a cleansing conduit for cleansing said stillwell apparatus;
- c) inserting said stillwell apparatus into a vessel,
- d) extending the length of said stillwell apparatus, and
- e) connecting said stillwell apparatus to an exterior of a vessel.

27. A method for installing a stillwell apparatus for housing an analytical device comprising the steps of

- a) providing a stillwell apparatus, said stillwell apparatus comprising a generally cylindrical shape having an interior for housing the analytical device, an exterior, an upper section having first and second opposite ends, and a lower section having first and second opposite ends;
- b) mounting on said exterior and parallel to said stillwell apparatus a cleansing conduit for cleansing said stillwell apparatus;

- c) attaching an upper section first end to an exterior of a vessel, said upper section first end comprising vents;
- d) connecting an upper section second end to a lower section first end; and
- e) extending the length of said stillwell apparatus.

29. A method for using a stillwell apparatus comprising the steps of:

- a) inserting a stillwell apparatus into a vessel,
- b) connecting said stillwell apparatus to said vessel,
- c) extending the length of said stillwell apparatus,
- d) inserting an analytical device for the detection of substances selected from the group consisting of gases, liquids, and solids, and
- e) detecting a physical parameter associated with substances selected from said group consisting of gases, liquids, and solids.

29. A method for cleaning a stillwell apparatus comprising the steps of:

- a) inserting a stillwell apparatus into a vessel, wherein said stillwell apparatus comprises an interior for housing an analytical device and an exterior for attaching a means for cleansing said stillwell apparatus,
- b) connecting said stillwell apparatus to said vessel,

c) connecting said means for cleansing said stillwell apparatus to an exterior source of cleansing solution,

d) extending the length of said stillwell apparatus,

e) inserting an analytical device for the detection of substances selected from the group consisting of gases, liquids, and solids,

e) detecting a physical parameter associated with substances selected from said group consisting of gases, liquids, and solids,

f) cleansing said stillwell apparatus with substances selected from the group consisting of liquid cleansers, solid cleansers, and gaseous cleansers.

30. A method for removing a stillwell apparatus comprising the steps of:

a) disconnecting said stillwell apparatus from a top of a vessel and

b) removing said stillwell apparatus from said vessel.